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(54) **SOLAR POWERED AIRPLANE**

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(57) **ABSTRACT**

A solar powered aircraft including a modular main wing and a pair of relatively large modular winglets attached to the transverse end portions of the main wing. To collect solar radiation, including relatively low-angle radiation, solar panels are mounted to both the main wing and the winglets. In some embodiments, the aspect ratio of the main wing is relatively low, such as between 9 and 15, i.e., the main wing is relatively deep compared to its wing span. In some embodiments, the winglets are relatively long, such as in the range of 0.2 to 0.7 times the length of the main wing semi-span. In some embodiments, a truss-like spar passes through and helps support the wing and the winglets.